EVALUATION OF TEA UNITS: KITABI, GISAKURA & MATA

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KITABI UNIT

1. PLANTATIONS

1.1. General information

The plantations of Kitabi were commenced in 1969 under a development programme financed by the Belgian government. All the tea is planted at an altitude between 2000 and 2500 metres, which partly accounts for the high quality of Kitabi teas. The funded planting finished in 1982 but some smaller auto-financed blocks were added in 1992-93. Both Industrial blocks and Smallholder parcels were established and the whole of the tea area, with the exception of 6 ha of test area, is planted with clonal material.

The complex also includes some 532 ha of fuel wood plantation, which belongs to the factory, and which is more than sufficient to ensure future supplies.

The plantation complex incorporates 2 of the 3 of the plantation types existing in Rwanda, viz. Industrial block, Cooperative block and Smallholder parcels.

The factory is currently responsible for the administration and provision of technical assistance to the smallholders. That means that the factory arranges leaf collection, transport, road & bridge maintenance and provides agricultural extension agents to advise the smallholders on cultural practices.

An association of Smallholders has recently been established. This association – in this instance called "COBACYAMU" - represents the 5225 smallholders and from early in 2002 the factory will only have to make payment to this one body for the smallholder green leaf.

The distribution of the tea is as follows:

Industrial Block	-	350.00 ha
Smallholder plots	-	650.00 ha
TOTAL	-	**1,000.00 ha.**

1.2. Details of plantation types

1.2.1. Industrial Block

There are no distinct sectors. The 338 ha is dispersed around the factory and in some instances surrounds blocks of smallholder tea.

All tea is of clonal origin although the clones were intermixed at planting and unfortunately, no "mother bush" plots remain to facilitate future propagation. The tea is well maintained and of excellent appearance.

1.2.2. Smallholder plots

The total area of 650 ha. Consists of 5225 smallholdings planted mainly near two loop roads, the largest concentration being found along the Kitabi-Kibuye road.

In this complex the smallholder tea is often found in adjacent blocks, which tends to lead to better maintenance and yield than single plots. With the exception of 6 ha, all the tea is of clonal origin.

1.3. Possibilities of extension

1.3.1. Industrial Block

A large number of small, unplanted areas are to be found interspersed amongst the planted tea. There is no apparent reason that these should not be planted as tea indicator plants are to be found growing there in abundance. Some hill areas belonging to the factory remain to be planted and it is estimated that a total of 50-100 ha in total may be available.

A further possibility of extension would be on Government land along the forest edge. This land is currently being planted illegally with food crops. It is thought that the Government would look

sympathetically on a request for a long lease on this land to plant tea, which would result in the establishment of a barrier to halt forest encroachment.

It is also recommended that some of the fuel wood area, currently planted with *Pinus*, be replanted with tea. An estimated 20-30 ha would be available.

1.3.2. Smallholder

Ample land is available for extension and expansion of smallholder plots and this is already taking place. It must be mentioned, however, that the new extensions are being done with bad planting material (from seed collected from old plantings) and therefore the yield of these new plantings will never reach satisfactory levels.

It is recommended that the new investor produce quality planting material for sale to smallholders at cost. This will eventually benefit both parties.

1.4. Yields

1.4.1. Historic yields

A table of yields is given below. Kitabi factory was badly damaged in 1994 and its fields and those of the smallholders were abandoned. Things are now back to normal but information regarding distribution of crop is not available for recent years.

			mt			mt	total	total
yields	**Bl**	**%**	**kg/ha**	**TV**	**%**	**kg/ha**	**g.leaf**	**MT**
1993	2,348,483	40.41%	1443.00	3,463,785	59.59%	1146.00	5,812,268	1,183,030
2000	1,854,056	38.16%	1326.41	3,004,900	61.84%	1157.55	4,858,956	1,216,653
est 2001	3,069,000	41.25%	1885.71	4,371,000	58.75%	1446.15	7,440,000	1,600,000

It should be noted that the year 2001 is an exceptionally favourable year from the climatic point of view.

1.4.2. Future yields

Because of the transfer of responsibilities from the factory to the smallholder association it is difficult to project future yields.

On the assumption that all will follow recommendations of the factory management, and that those recommendations will include the increase of Nitrogen application progressively from the current level of 100 kg/ha to 180 kg/ha, the anticipated total future crop may be as follows:

year	**2001**	**2002**	**2003**	**2004**	**2005**
Black Tea M Tonnes	1,500	1,550	1,600	1,650	1,700

1.5. Current value

For current value only the assets that can be directly transferred to the investor can be taken into account. In the case of Kitabi this means 350.00 ha of Industrial block and 532 ha. of fuel wood plantation.

The consultant has examined the tea and fuel wood plantations and has based his valuation on current condition and replacement cost. The current value of the plantations is US$ 989,000

In the case that the land is leased to the investor on a 99-year lease, the rental amount appropriate for the above valuation is as follows:

Land under tea - US$ 110.00 per hectare per year
Land under fuel wood - US$ 40.70 per hectare per year

1.6. Necessary investments

It would be beneficial to commence a planting programme to use all available land and also to make quality clonal material available, at cost, to smallholders.

A planting programme of 20 ha. per annum should commence in year 3, nursery preparation commencing in year 1.

Costs in US$ would be

	Unit cost	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
20 ha.	2,200/ha	22,000	22,000	44,000	44,000	33,000

The provision of planting material for smallholders would be auto-financed.

2. FACTORY

2.1. General Information

The factory was constructed in 1977 and is situated in the South West of Rwanda, some 195 km from Kigali at an altitude of 2180 m.

Since its construction there has been no addition to the buildings although in 1990/91 a second line of machinery was added to double the initial installed capacity of 600 MT.

In 1994 the factory machinery was badly damaged during the war and during 1995/6/7 it was completely rehabilitated.

2.2. Processing capacity

2.2.1. Reception/withering

The weighbridge at the entry to the factory is not functioning and must be repaired or replaced. This is essential for the weighing of smallholder tea.

The withering section consists of 4 levels, each holding 8 troughs and having a total holding capacity of 26,323 kg of green leaf at standard charge of 25kg/m2. Current requirements are for a nominal holding capacity of 52,600 kg for an annual crop of 1600MT.

2.2.2. Rolling

Two withered leaf sifters feed the rolling section comprising 2 lines of 15" Rotorvane feeding Vikram 30" triplex CTC machines. These machines are in good condition. Capacity is sufficient for a crop of 1800 MT.

2.2.3. Fermenting

The installation of 46 George Williamson trolleys is sufficient to feed the FBD drier and to cope with a crop of 1800 MT. The installation and humidifiers are in good condition.

2.2.4. Drying

During the rehabilitation a Marshall Fowler FBD was installed and the MF 2-stage drier reconditioned. The installed capacity is thus 630 + 230 kg/hr. This is in excess of requirements and the MF 2-stage is kept for emergency use. The dryers are in good condition.

2.2.5. Sorting & Packing

The sorting equipment was completely renewed during the rehabilitation and can easily cope with current crop. It is in good condition.

2.2.6. Steam generation

Two boilers, one Robey 4500kg/hr new in 1997, and a Mahy Freres 2780 kg/hr recently rehabilitated, supply sufficient steam for current and future requirements. Fuel wood is in plentiful supply and is well prepared for the boiler furnace.

2.2.7. Electrical generation

Power is supplied from the National grid via a 630 KVA transformer. The 3 reserve Cummins generators, each of 360 KVA, were supplied in 1997. Two are in working order, one requires the attention of a Cummins engineer.

2.3. Current value

The consultant has examined the factory building and machinery and has based his valuation on current condition and replacement cost. The current value of factory buildings and machinery is US$ 2,653,000

2.4. Necessary investments

A provision of $20,000 should be made in year 1 to replace the weighbridge should this be found necessary.

An amount of approx. $452,000 will be necessary to increase the withering area to the required capacity. This work may be carried out in years 2 & 3.

Item	Unit cost US$	Year 1	Year 2	Year 3	Year 4	Year 5
Repair/replace Weighbridge	20,000	20,000				
Extension withering dept.	452,000		252,000	200,000		
Total		**20,000**	**252,000**	**200,000**		

3. BUILDINGS

3.1 Actual situation

No additions have been made to buildings post 1994 and some 50% have been rehabilitated and are in good condition.

Others need varying amounts of rehabilitation work although most of the houses are habitable.

3.2. Current value

The condition of the buildings is varied. The consultant has made his valuation considering replacement cost and average condition.

The value of ancillary buildings is $239,000

3.3. Necessary investments

No new investments are deemed necessary during the 1st 5 years of operation

4. TRANSPORT

4.1. Actual situation

Since the start of the privatisation process the fleet of vehicles has been reduced considerably and consists of 1 tractor with 2 trailers, a camionette and the director's 4x4.

Green leaf from the industrial blocks is currently carried by private contractors at a rate of FRw 4.00/kg and fuel wood is brought to the factory at a rate of FRw 800/m3. The economics of these operations must be evaluated.

4.2. Current value

Taking account of replacement cost and condition the fleet is valued at US$ 40,000.

4.3. Necessary investments

The main task of the tractor is to remove waste from the wood fuel yard and to carry materials for road repairs. Replacement of the tractor and jeep may be foreseen in year 3 at a cost of $65,000.

It is probable that some extra vehicles will be necessary under the new management structure but this cannot be foreseen at this stage.

5. RÉSUMÉ

There is some room for expansion of the industrial block and smallholdings, factory capacity is not yet fully utilised and the tea is of excellent quality and highly sought after on the world market.

The entire complex is valued at US$ 3,921,000, made up as follows:

Plantations (tea and fuel)	$ 989,000
Factory buildings and machinery	$2,653,000
Buildings	$ 239,000
Transport	$ 40,000

Rental value of plantations is calculated as:

Land under tea	-	US$ 110.00 per hectare per year
Land under fuel wood	-	US$ 40.70 per hectare per year

Investments as follows totalling $713,000,00 are considered desirable in the first 5 years of operation.

	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Total**
Field	22,000	22,000	44,000	44,000	44,000	176,000
Factory	20,000	252,000	200,000			472,000
Tansport			65,000			65,000
Buildings						
	42,000	**274,000**	**309,000**	**44,000**	**44,000**	**713,000**

GISAKURA UNIT

1. PLANTATIONS

1.1. General information

The plantations of Gisakura were commenced in 1965, as a Cooperative scheme, under a development programme financed by the European Union. At a later date some older (1954) and smaller plantations, established by an association of Belgian planters, were incorporated into Gisakura as Industrial blocks and in 1975 extensions were made to these blocks and some smallholder plots were transferred from Shagasha.

The plantation complex thus incorporates all 3 of the plantation types existing in Rwanda, viz. Industrial block, Cooperative block and Smallholder parcels. Until recently (2000) the factory was responsible for the management of both the Industrial and Cooperative blocks whereas the individual smallholders sold their production to the factory and are responsible for their own maintenance and upkeep of their plots.

The transfer of responsibilities to the Coopthé means that the latter is responsible for all actions and decisions concerning its plantations, which are jointly owned by the members of the Cooperative. The factory purchases green leaf from the Coopthé, delivered to the factory reception area.

An association of Smallholders has also recently been established. This association – in this instance called "UMACYAGI" represents the 1032 smallholders and the factory only has to make payment to this one body for the smallholder green leaf.
The distribution of the tea plantations is as follows:

Industrial Block	-	357.00 ha
Cooperative	-	607.50 ha
Smallholder plots	-	308.00 ha
TOTAL	-	**1,272.50 ha**

It should be noted that the smallholder tea area is continually increasing as new plots are planted or existing plots extended.

The unit also benefits from 139 ha. Of *Eucalyptus* in Industrial block, and 81.27 ha. on Cooperative land.

1.2. Details of plantation types

1.2.1 Industrial Block

There are two sectors, each some 200-500 metres lower than the factory.

Murambi	-	233.25 ha
Kibazi	-	123.75 ha

Murambi sector comprises both marsh (151 ha.) and hill (82 ha.) tea. The marsh tea is mainly good quality clonal varieties whilst the hill tea is of seed origin. Replanting of the hill tea should be programmed. One section (No.6) of marsh tea should have priority in an infilling/replanting programme.

Kibazi tea is all hill grown and of seed origin. There are many sections with vacancies and replanting with clones should be programmed.

1.2.2. Cooperative Block

There are 3 sectors two of which are close to the factory. The 3rd sector, Mwaga, is some 500 metres lower.

Mwaga	-	175.00 ha.
Gisakura	-	225.00 ha.
Ndambarare	-	207.50 ha

Mwaga sector is mainly planted in marshland and is a mixture of seed and clonal plants. It is high yielding and should be last on a replanting programme.

Gisakura sector is on a plateau at the same level as the factory. It is mainly of seed origin but shows good cover and has a reasonable yield.

Ndambarara is also mainly seed. The sector is mainly on the factory plateau but descends towards Mwaga.

1.2.3. Smallholder plots

The total area of 308 ha. Consists of 1032 smallholdings. The quality of care given to the plots is variable from very poor to excellent.

1.3. Possibilities of extension

1.3.1. Industrial Block

There is little room for expansion except if some empty spaces, which used to hold Cinchona plants, and are now under the tutorship of OCIR Café, could be transferred to OCIR Thé before the privatisation of the property and thus sold to the private investor. This would allow for 50-100 ha of new industrial block to be planted.

For expansion of the fuel wood plantations it is recommended that Government be approached to effect a long lease of land adjacent to Mwaga sector which is eminently suitable for this purpose.

1.3.2. Coopthé

The only land available for expansion is some 50 ha. in the Mwaga sector.

1.3.3. Smallholder

Ample land is available for extension and expansion of smallholder plots and this is already taking place. It must be mentioned, however, that the new extensions are being done with bad planting material (from seed collected from old plantings) and therefore the yield of these new plantings will never reach satisfactory levels.

It is recommended that the new investor produce quality planting material for sale to smallholders at cost. This will eventually benefit both parties.

1.4.Yields

1.4.1. Historic yields

A table of yields is given below. Gisakura is unique in that it was the only tea factory in the country, which was undamaged in 1994. The fall in production in 1995 was mainly due to labour shortage but the labour supply is now above pre-war levels.

		mt		mt		mt	total	total
yields	BI	kg/ha	Coopthe	kg/ha	TV	kg/ha	g.leaf	MT
1993	1,580,155	1054.72	3,823,605	1499.80	1,295,269	1002.11	6,699,029	1,596,318
1995	1,002,450	636.73	3,922,914	1464.28	1,247,538	918.47	6,172,902	1,399,751
1996	1,227,001	770.62	2,566,950	947.41	1,458,029	1061.40	5,251,980	1,177,574
1997	1,653,446	1044.84	3,126,486	1161.01	1,359,618	995.85	6,139,550	1,385,044
1998	1,844,363	1153.72	3,997,451	1469.47	1,595,439	1156.78	7,437,253	1,660,868
1999	1,808,568	1080.77	3,419,234	1200.74	1,655,504	1146.69	6,883,306	1,468,464
2000	1,945,020	1172.53	3,553,718	1258.94	1,854,562	1295.86	7,353,300	1,582,525
est 2001	2,004,564	1207.53	4,450,193	1575.36	1,915,243	1337.27	8,370,000	1,800,000

It is surprising to note in the table above that the yield of the industrial blocks is inferior to that of the smallholders. This is unusual and should be investigated.

1.4.2. Future yields

Because of the transfer of responsibilities from the factory to the Coopthé and smallholder associations it is difficult to project future yields.

On the assumption that the recommendations of the factory management will be followed, and that those recommendations will include the increase of Nitrogen application progressively from the current level of 120 kg/ha to 180 kg/ha, the anticipated total future crop may be as follows:

Year	**2001**	**2002**	**2003**	**2004**	**2005**
Black Tea M Tonnes	1,850	1,900	2,000	2,100	2,150

1.5. Current value

For current value only the assets that can be directly transferred to the investor can be taken into account. In the case of Gisakura this means 357.00 ha. of Industrial block and 138 ha. of *Eucalyptus* plantation.

The consultant has examined the tea and fuel wood plantations and has based his valuation on current condition and replacement cost. The current value of plantations is US$ 594,000

In the case that the land is leased to the investor on a 99 year lease, the rental amount appropriate for the above valuation is as follows:

Land under tea - US$ 88.79 per hectare per year
Land under fuel wood - US$ 33.30 per hectare per year

1.6. Necessary investments

It is necessary to commence a replanting/infilling programme as soon as possible. In the long term the whole plantation should be replanted with high yielding clones over a twenty year period.

Replanting of 15 ha. per annum should commence in year 3, nursery preparation commencing in year 1.

Costs in US$ would be :

	Unit cost	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
15 ha.	2,200/ha	11,250	11,250	33,000	33,000	33,000

2. FACTORY

2.1.1. General Information

The factory was constructed in 1975 and is situated in the South West of Rwanda, some 240 km from Kigali at an altitude of 1940m.

Since its construction a small extension to the building has been made for the storage of tea, and in 1985 and 1990 changes in machinery were made to increase the initial installed capacity of 1200 MT per annum. However the capacity was not increased throughout the entire processing line and additional modifications are required to bring the capacity to the required 1800 MT per annum

2.2. Processing capacity

2.2.1. Reception/withering

The withering section has not been modified since its installation in 1975 and has a holding capacity of 36000 kg of green leaf at standard charge of 25 kg/m2. Current requirements are for a nominal holding capacity of 54000 kg.

2.2.2. Rolling

The rolling section comprises 2 lines of 15" stainless steel Gyrovane feeding Vikram 30" triplex CTC machines. These are in reasonable condition and new sets of rollers have recently been purchased for the CTC machines. The capacity is sufficient for current production.

2.2.3. Fermenting

The original installation of 48 George Williamson trolleys is sufficient to feed the installed driers and cope with current crop. However, the humidifiers that normally supply moist air to the trolleys are not functioning and need urgent repair or replacement as this affects tea quality and consequently the price.

2.2.4. Drying

In 1990 a McCloy Fluid bed dryer was added to increase theoretical drying capacity from 460 to 910 kg/hr.

In fact the output of the installed driers varies from 660-720 kg/hr which is, however, sufficient to process current crop. However the installation of a second FBD drier would be beneficial though not essential.

2.2.5. Sorting & Packing

Extensive changes have been made to the original sorting arrangement and although the capacity is sufficient the arrangement could be improved. Storage tanks and packing facilities are sufficient.

2.2.6. Steam generation

Two Perkins boilers, in good condition and recently re-tubed, supply sufficient steam for current and future requirements. Fuel wood is in plentiful supply and is well prepared for the boiler furnace. A log-splitter is currently budgeted for purchase shortly.

2.2.7. Electrical generation

Power is supplied from the National grid via a 500 KVA transformer. The 3 reserve generators, each of 262 KVA, are those originally supplied in 1975. Two are in working order but are extremely inefficient. One machine of 600 KVA should be installed for standby purposes.

2.3. Current value

The consultant has examined the factory building and machinery and has based his valuation on current condition and replacement cost. The current value of factory buildings and machinery is US$ 1,796,000

2.4. Necessary investments

It is essential that a standby generator of sufficient capacity to run the whole of the factory machinery be purchased at an approximate cost of US$ 120,000. Current machines are unreliable and may breakdown at any time.

The sorting arrangement should be streamlined and some machines replaced. Fibre extractor rollers should be rehabilitated. This should be done in year 1.

A further amount of approx. $295,000 will be necessary to increase the withering area to the required capacity. This work may be carried out in years 2 & 3.

Item	Unit cost US$	Year 1	Year 2	Year 3	Year 4	Year 5
Repair/replace Humidifiers	4,000	8,000				
Generator 600KVA	120,000	120,000				
Extension withering dept.	295,000		120,000	174,000		
Rehabilitation sorting eqpt.		15,000				
Total		**143,000**	**120,000**	**174,000**		

3. BUILDINGS

3.1.Actual situation

Some small additions have been recently made, otherwise the installations remain mainly as originally established.

It is interesting to note that the factory remains owner of all building structures, even those occupied by Coopthé and Smallholder personnel or materials. No doubt some arrangement will have to be made to compensate the factory for this.

3.2. Current value

The condition of the buildings is varied. The consultant has made his valuation considering replacement cost and average condition and taking into account the fact that some of these buildings will be of no value to the purchaser and may have to be rented at a peppercorn rent to the Coopthé.

Ancillary buildings are valued at US$ 269,000.

3.3. Necessary investments

No new investments are deemed necessary during the 1st 5 years of operation

4. TRANSPORT

4.1. Actual situation

Since the transfer of responsibility for the administration and management of the Coopthé away from the factory, the fleet of vehicles has been reduced considerably and consists of 1 tractor with 2 trailers, a tipper lorry and the director's 4x4.

Green leaf from the industrial blocks is currently carried by private contractors at a rate of FRw 4.00/kg. The economics of this operation must be evaluated.

4.2. Current value

Taking account of replacement cost and condition the fleet is valued at US$ 50,000.

4.3. Necessary investments

The main task of transport is to carry wood from the fuel plantation to the factory. The tractor and tipper lorry do this task admirably although the purchase of a third trailer would make the tractor work more efficiently. This should be bought in year 1 at an approximate cost of US$5,000. Replacement of the tractor and jeep may be foreseen in year 3 at a cost of $65,000.

It is probable that some extra vehicles will be necessary under the new management structure but this cannot be foreseen at this stage.

5. RÉSUMÉ

From the technical point of view the unit of Gisakura is a sound investment. Although there is not much room for expansion, current crop rates, which could increase by 10-15%, provide a solid basis for the production of a good quality tea.

The entire complex is valued at US$ 2,709,000 made up as follows:

Plantations (tea and fuel)	$ 594,000
Factory buildings and machinery	$ 1,796,000
Buildings	$ 269,000
Transport	$ 50,000

Rental value of plantations is calculated as:

Land under tea	-	US$ 88.79 per hectare per year
Land under fuel wood	-	US$ 33.30 per hectare per year

Investments as follows totalling $628,500.00 are considered necessary in the first 5 years of operation.

	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Total**
Field	11,250	11,250	33,000	33,000	33,000	121,500
Factory	143,000	120,000	174,000			437,000
Transport	5,000		65,000			70,000
Buildings						
	159250	**131,250**	**272,000**	**33,000**	**33,000**	**628,500**

MATA UNIT

1. PLANTATIONS

1.1. General information

The plantations of Mata were commenced in 1975 under a development programme financed by the European Union. All the tea is planted at an altitude between 1700 and 2000 metres. The majority is planted in marshland. Both Industrial blocks and Smallholder parcels were established and the whole of the tea area, with the exception of some small blocks, is planted with clonal material.

The complex also includes some 213 ha of fuel wood plantation, which belongs to the factory, but which is insufficient to fulfil current demand.

The plantation complex incorporates 2 of the 3 of the plantation types existing in Rwanda, viz. Industrial block, Cooperative block and Smallholder parcels.

The factory is currently responsible for the administration and provision of technical assistance to the smallholders. This means that the factory arranges leaf collection, transport, road & bridge maintenance and provides agricultural extension agents to advise the smallholders on cultural practices.

An association of Smallholders has recently been established. This association – in this instance called "ATHENYA" - represents the 1710 smallholders and from early in 2002 the factory will only have to make payment to this one body for the smallholder green leaf.

The original planted area comprised 608.95 ha of industrial block and 423.58 ha of smallholder plots. However the Mata area was one of the worst affected during the genocide and the factory was completely stripped and the fields abandoned.

As a result, 13.75 ha of industrial block was irrecoverable, some 63 ha of smallholder tea has yet to be reclaimed and the complex suffers from a severe lack of labour force. However, ATHENYA has started to rehabilitate some of the abandoned smallholder plots.

The tea area currently in production is as follows:

Industrial Block	-	595.20 ha
Smallholder plots	-	360.49 ha
TOTAL	-	**955.69 ha.**

1.2. Details of plantation types

1.2.1. Industrial Block

There are three distinct sectors. BI 1 is planted on hills surrounding the factory and in marsh land at the bottom of these hills. BI 2 comprises only 11 ha of hill tea. The rest is marsh land extending some 20 km away from BI 1. BI 3 is separated from BI 2 by a sector of Smallholder marsh tea and extends up to 25 km from the factory.

Block	Hill tea	Marsh tea	Total
BI 1	244.03	87.84	331.87
BI 2	11.08	138.03	149.51
BI 3		127.57	127.57
Total	255.11	353.44	608.95

1.2.2. Smallholder plots

The total productive area of 360.49 ha. consists of 1710 smallholdings planted in two distinct areas, the largest being found around the factory and is almost evenly divided between hill and marsh tea. The second area is to be found almost 100% in marsh land between BI 1 and BI 2.

The smallholder tea is very poorly maintained and it seems that there is a lack of labour to carry out the necessary work.

1.3. Possibilities of extension

1.3.1. Industrial Block

There is no land available for extension of the industrial block nor is there any government land for possible lease.

1.3.2. Smallholder

Ample land is available for extension and expansion of smallholder plots. However since there is insufficient labour to manage existing plots, and there are still abandoned areas, it is unlikely that any expansion will take place in the short term.

1.4. Yields

1.4.1. Historic yields

A table of yields is given below. Mata factory was badly damaged in 1994 and its fields and those of the smallholders were abandoned.

Production has only just returned to pre-war level.

			mt			mt			mt	total	total		MT Mata
yields	Bl	%	kg/ha	TV	%	kg/ha	Nshili	%	kg/ha	g.leaf	MT	ratio	only
1992	2,169,681	60.00%	849.72	1,446,454	40.00%	935.31				3,616,135	842,921	4.29	842,921
1993	2,028,666	60.00%	821.30	1,352,444	40.00%	904.02				3,381,110	814,725	4.15	814,725
1997	1,539,162	57.74%	608.58	1,122,640	42.12%	732.90	3,717	0.14%	0.87	2,665,519	627,303	4.25	626,428
1998	2,012,187	48.15%	789.03	1,238,315	29.63%	801.72	928,359	22.22%	216.67	4,178,861	975,316	4.28	758,644
1999	2,429,749	46.45%	915.89	1,263,797	24.16%	786.55	1,536,939	29.38%	344.83	5,230,485	1,173,506	4.46	828,680
2000	2,026,937	44.10%	806.80	1,336,535	29.08%	878.36	1,232,398	26.82%	291.97	4,595,870	1,088,815	4.22	796,846
est 2001	2,574,000	45.00%	982.86	1,601,600	28.00%	1009.74	1,544,400	27.00%	351.00	5,720,000	1,300,000	4.40	949,000

It should be noted that the year 2001 is an exceptionally favourable year from the climatic point of view.

Yields of the industrial blocks are unacceptably low and are only just above what is generally

considered to be an economic yield.

1.4.2. Future yields

Because of the uncertainty of labour supply and of smallholder participation it is difficult to project future yields.

On the assumption that conditions will not deteriorate and that there will be an increase of Nitrogen application progressively from the current level of 100 kg/ha to 180 kg/ha, the anticipated total future crop may be as follows:

Year	2001	2002	2003	2004	2005
Black Tea M Tonnes	950	1,000	1,050	1,100	1,150

Should adequate labour be available then the yields would increase dramatically

1.5. Current value

For current value only the assets that can be directly transferred to the investor can be taken into account. In the case of Mata this means 595.20 ha of Industrial block and 213 ha. of fuel wood plantation.

The consultant has examined the tea and fuel wood plantations and has based his valuation on current condition and replacement cost. The current value of these plantations is US$ 841,000

In the case that the land is leased to the investor on a 99 year lease, the rental amount appropriate for the above valuation is as follows:

Land under tea - US$ 77.17 per hectare per year
Land under fuel wood - US$ 25.90 per hectare per year

1.6. Necessary investments

In view of the shortage of labour, no extension/replanting works can be recommended at this time.

2. FACTORY

2.1. General Information

The factory was constructed in 1981 and is situated in the South West of Rwanda, some 185 km from Kigali at an altitude of 1865 m. The access road from Gikongoro is some 17 km of laterite track in poor condition. A more direct route from Butare is currently impassable.

Since 1986 the factory has been processing green leaf produced in Nshili-Kivu plantation, 45 km distant, that has no factory. At privatisation it is assumed that a factory will be built at Nshili and that Mata will only process its own crop.

Since its construction there has been no addition to the buildings although at various times changes were made to installed machinery.

In 1994 the factory machinery was badly damaged during the war and during 1995/6/7 it was completely rehabilitated.

2.2. Processing capacity

2.2.1. Reception/withering

There is no weighbridge at the entry to the factory although this is considered essential for the weighing of smallholder tea.

The withering section consists of 2 levels, holding 16 and 15 troughs respectively and having a total holding capacity of 31,000 kg of green leaf at standard charge of 25kg/m2. Current requirements are for a nominal holding capacity of 32,900 kg for an annual crop of 1,000MT. Extension is not considered necessary to cope with this slight difference.

2.2.2. Rolling

Two withered leaf sifters feed the rolling section comprising 2 lines of 15" Rotorvane feeding Vikram 30" triplex CTC machines. These machines are in good condition. Capacity is sufficient for a crop of 1800 MT.

2.2.3. Fermenting

The installation of 48 George Williamson trolleys is sufficient to feed the FBD drier and to cope with a crop of 1800 MT. The humidifiers are not functioning although repair is said to be in hand.

2.2.4. Drying

During the rehabilitation a second, reconditioned, McCloy drier was installed and the original one also reconditioned. The installed capacity is thus 2 x 400 kg/hr although combined output is reported to be only 580 kg/hr. Even this is in excess of requirements although there must be some inefficiency. The dryers are, however, in good mechanical condition.

2.2.5. Sorting & Packing

The sorting equipment was completely rehabilitated during the rehabilitation and can easily cope with current crop. It is in good condition.

2.2.6. Steam generation

Two Robey boilers each producing 2040 kg/hr were recently rehabilitated and upgraded and supply sufficient steam for current and future requirements. Fuel stocks are low but the firewood is well prepared for the boiler furnace.

2.2.7. Electrical generation

Power is supplied from the National grid via a 630 KVA transformer. This supply is unreliable and averages 5 hours of down-time daily.

The 3 reserve Cummins generators, each of 360 KVA, were supplied in 1997. Two are in working order, one requires rewinding of part of the generator. This work is reported to be in hand.

2.3. Current value

The consultant has examined the factory building and machinery and has based his valuation on current condition and replacement cost. The current value of factory buildings and machinery is US$ 1,331,000

2.4. Necessary investments

A provision of $20,000 should be made in year 1 to install a weighbridge although this is not essential. No other factory investments are considered necessary during he first 5 years of operation.

Item	**Unit cost US$**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Install weighbridge	20,000	20,000				
total		**20,000**				

3. BUILDINGS

3.1. Actual situation

Some additions have been made to the initial installation and the rehabilitation project included refurbishment of 6 houses. Since then more houses have been rehabilitated by the factory and on the whole the constructions are in good condition.

3.2. Current value

The consultant has made his valuation considering replacement cost and average condition.

The value of ancillary buildings is $214,000

3.3. Necessary investments

No new investments are deemed necessary during the 1st 5 years of operation

4. TRANSPORT

4.1.Actual situation

Since the start of the privatisation process the fleet of vehicles has been reduced considerably and consists of 1 tractor with 3 trailers, a camionette, a tipper lorry and the director's 4x4.

Some of the green leaf from the industrial blocks is currently carried by private contractors at an average rate of FRw 4.00/kg and fuel wood is bought at the factory at a rate of FRW 2,300/m3.

4.2. Current value

Taking account of replacement cost and condition the fleet is valued at US$ 60,000.

4.3. Necessary investments

Replacement of the jeep may be foreseen in year 2 at a cost of $40,000. It is probable that some extra vehicles will be necessary under the new management structure but this cannot be foreseen at this stage.

5. RÉSUMÉ

The problem of labour shortage is serious and must be resolved.
The complex is valued at US$ 2,446,000, made up as follows:

Plantations (tea and fuel)	$ 841,000
Factory buildings and machinery	$1,331,000
Buildings	$ 214,000
Transport	$ 60,000

Rental value of plantations is calculated as:

Land under tea	-	US$ 77.17 per hectare per year
Land under fuel wood	-	US$ 25.90 per hectare per year

Investments as follows totalling $60 000,00 are considered desirable in the first 5 years of operation.

	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Total**
Field						
Factory	20,000					20,000
Transport		40,000				40,000
Buildings						
	20,000	**40,000**				**60,000**